

SITE SS-005 NON-DESTRUCTIVE INSPECTION FACILITY

PROPOSED PLAN

**PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK**

DRAFT

OCTOBER 1996

**UNITED STATES DEPARTMENT OF THE AIR FORCE
INSTALLATION RESTORATION PROGRAM**

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1.0 INTRODUCTION

This Proposed Plan recommends a remedial action for the Non-Destructive Inspection (NDI) Facility, SS-005, at the Plattsburgh Air Force Base (AFB) in Plattsburgh, New York (Figure 1). The United States Air Force (USAF) is proposing this plan to address contaminated soils and groundwater present as a result of site activities. The action plan has been evaluated in detail as part of the Department of Defense's (DOD) Installation Restoration Program (IRP) at the base.

The Proposed Plan is being published in accordance with Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Section 300.430 (f) of the National Contingency Plan (NCP). Its purpose is to summarize the results and conclusions of previous studies, and to provide information for public review and comment on the remedial alternative being considered. In accordance with the Federal Facilities Agreement between the USAF, the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC), the USAF will consider public input while selecting the final action plan for SS-005. Therefore, the public is encouraged to review and comment on the alternative being considered. The **Administrative Record File** contains the information upon which the selection of the response action will be based. This information is available to the public at the **Information Repository**, which is located at the Feinberg Library at the State University of New York (SUNY) Plattsburgh Campus.

Administrative Record File Location:

Feinberg Library
SUNY at Plattsburgh
Plattsburgh, NY 12901

Hours:

Monday through Thursday	8:30 AM to 11:30 PM
Friday	8:00 AM to 9:00 PM
Saturday	9:00 AM to 9:00 PM
Sunday	9:00 AM to 11:30 PM

The repository documents are on reserve (see the Special Collections Librarian). Photocopying equipment is available.

This plan addresses contamination that may have resulted from surface spills and tank leaks at the NDI facility. A remedial investigation (RI), conducted from 1992 to 1995, identified possible migration pathways of chemical contaminants to potential receptors. In addition, the risks posed to human health and the environment were evaluated in the RI.

Based on the results of the RI, it has been determined that there are no significant threats to human or ecological health or to groundwater resources posed by the relatively low levels of contamination at SS-005. Therefore, the USAF's recommended alternative for SS-005 is "No Further Action."

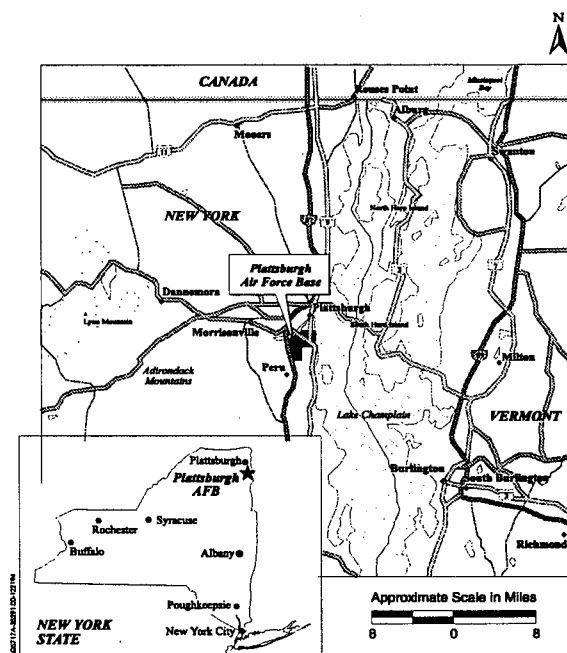


FIGURE 1: PLATTSBURGH AFB VICINITY LOCATION MAP

2.0 SITE BACKGROUND

Plattsburgh AFB, located in Clinton County in northeastern New York State, is bordered on the north by the City of Plattsburgh, on the west by Interstate 87, on the south by the Salmon river, and on the east by Lake Champlain. It lies approximately 26 miles south of the Canadian border and 167 miles north of Albany. Plattsburgh AFB was closed on September 30, 1995 and its reuse is being administered by the Plattsburgh Airbase Redevelopment Corporation (PARC). According to land use plans presented in the Environmental Impact Statement for disposal and reuse of the base, the likely reuse at SS-005 and its surrounding area will be aviation support (industrial).

As part of the USAF's IRP, Plattsburgh AFB has initiated activities to identify, evaluate, and restore identified hazardous waste sites. The IRP at Plattsburgh AFB is being implemented according to a Federal Facilities Agreement Docket No. II-CERCLA-FFA-10201, signed between the USAF, USEPA and NYSDEC on September 12, 1991. Plattsburgh AFB was placed on the National Priorities List (NPL) on November 21, 1989.

2.1 Site Description and History

The NDI Facility is located in the east-central portion of the base, within the industrial area (Figure 2). The site is situated approximately 160 feet northeast of Nose Dock 4 and 160 feet north-northwest of an aboveground reservoir. The U-shaped NDI building is surrounded by asphalt pavement. A waste accumulation area formerly was located at the southern edge of the paved area. A drainage ditch runs southeasterly away from the former waste accumulation area. An oil/water separator and a holding tank near Nose Dock 4 are located southwest of the NDI building. Possible sources of contamination include surface spills, runoff from the waste accumulation area, and leaks from the oil/water separator and holding tanks. Site features are shown in Figure 3.

The site geology consists of a marine/lacustrine sand, ranging from 25 to 39 feet

thick, overlying a relatively impermeable silt and clay unit. The groundwater table is shallow in the vicinity of SS-005, and lies approximately 4 feet below ground surface. Groundwater flows from the west toward the east and out the golf course drainage into Lake Champlain.

2.2 Scope and Role of Response Action

Chemical contaminants are present at relatively low levels in both soil and groundwater at SS-005. Based on the human and ecological health risk assessment (HRA) results, these chemicals do not pose a significant threat to human health or the environment. As such, there are no principal threats to humans or the environment that require a response action.

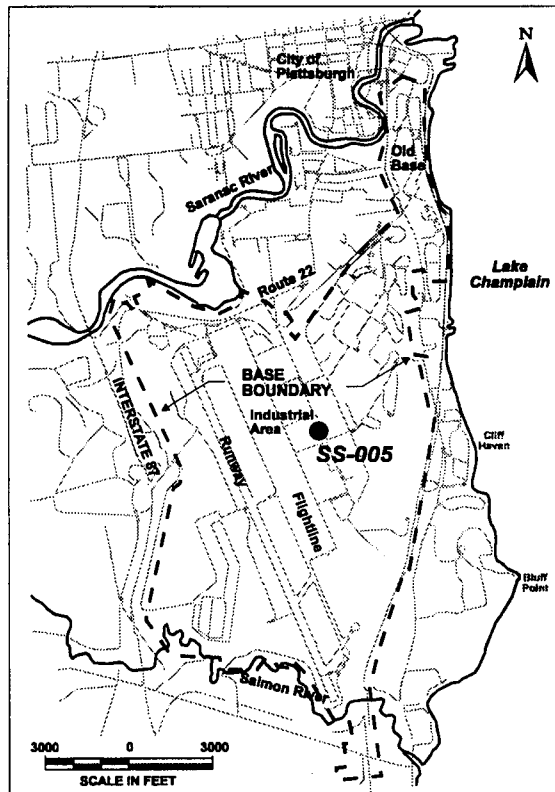
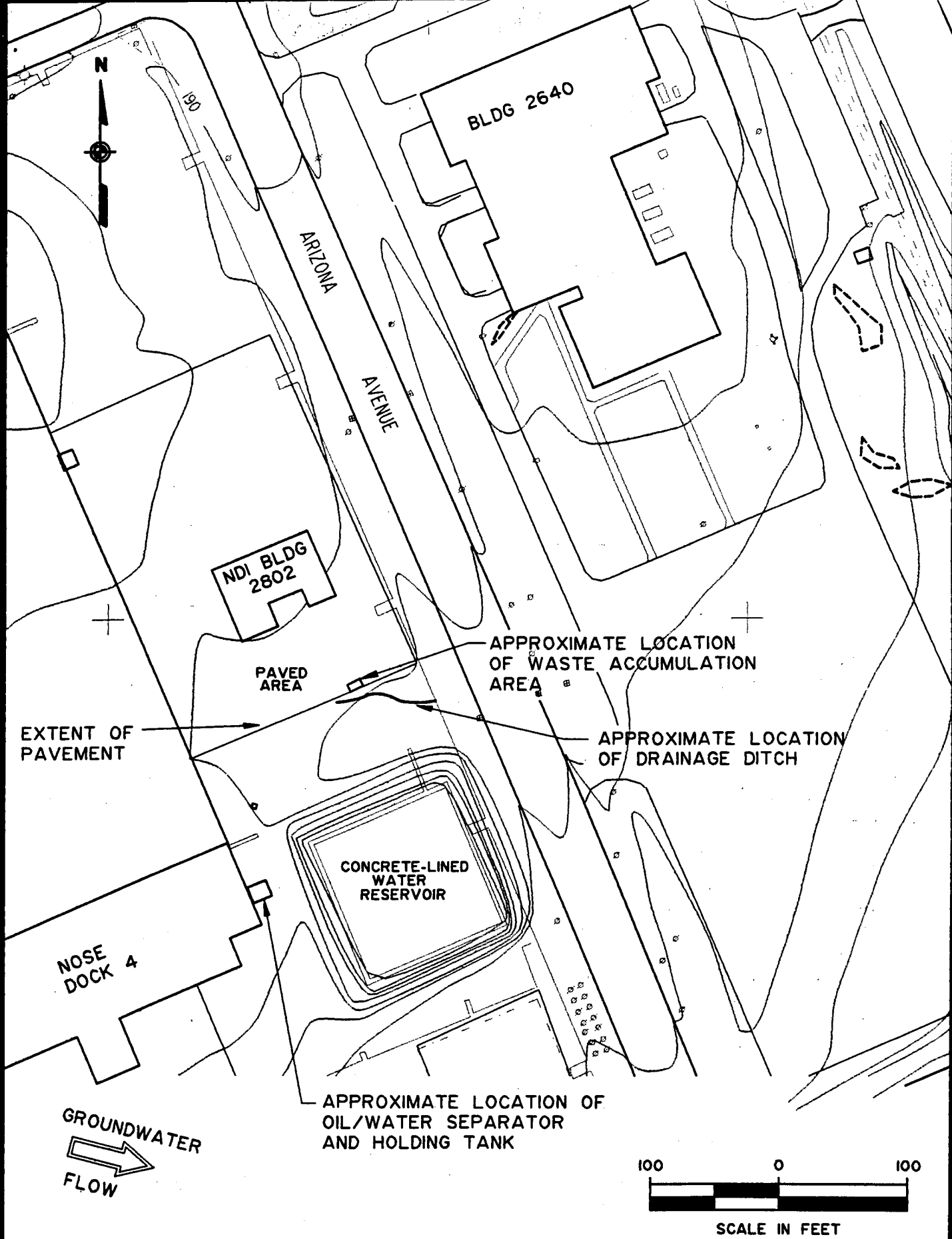


FIGURE 2: LOCATION OF SS-005



2.3 Summary of Previous Investigations

2.3.1 Site Inspection

A site inspection (SI) of the NDI Facility conducted in 1987 consisted of a records search, a soil organic vapor (SOV) survey, and soil sampling (E.C. Jordan Co. 1989). The records search revealed that no data was available regarding the site operations or type of waste stored at the site. The SOV samples, taken adjacent to Arizona Avenue, contained organic vapors that were approximately one order of magnitude higher than those taken next to Nose Dock 4. Surface soil samples contained traces of polynuclear aromatic hydrocarbons (PAHs), as well as high concentrations of petroleum hydrocarbons (PHCs) and volatile organics. Subsurface soil samples contained trace levels of solvents. Groundwater was not evaluated during the SI.

2.3.2 Remedial Investigation

Between October 1992 and February 1993, an RI was performed at SS-005 to characterize the magnitude and extent of groundwater and soil contamination at the site. The RI included the sampling of surface soil at 20 locations, near-surface soil at 7 locations, and subsurface soils at 3 boring locations. In addition, 3 monitoring wells were installed and groundwater was sampled during sampling events in January and April 1993. Sampling locations (Figure 4) were concentrated near a drainage swale running past the former location of the waste accumulation area and in proximity to the oil/water separator at Nose Dock 4. The analytical results from the sampled media were used to assess the current and potential future human and ecological health risks due to onsite contaminants.

2.4 Summary of Site Contamination

The contamination found at SS-005 can be evaluated by comparing the results to established requirements and guidelines.

The levels of contamination from organic compounds in soil (both surface and subsurface

soil) were evaluated by comparing the detected concentrations to guidance values specified in the Technical Administrative Guidance Memorandum (TAGM) #4046 entitled, *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC 1994). As recommended by TAGM #4046, levels of contamination from inorganic compounds in soil were evaluated by comparing the detected concentrations to site background levels (URS 1995) referred to as To Be Considered values (TBCs).

For groundwater, contaminant levels were compared to the site groundwater applicable and/or relevant and appropriate requirements (ARARs), which are derived from the NYSDEC water quality standards and guidance values specified in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 (October 1993), USEPA drinking water standards (40 CFR 141), and site background TBCs (for metals only).

2.4.1 Surface Soil Contamination

Tables 1 and 2 present a summary of the levels of contamination found in the SS-005 surface soil and a comparison to the guidance thresholds described in Section 2.4. No volatile organic compounds (VOCs), pesticides, or polychlorinated biphenyls (PCBs) were present above the guideline values. Six semivolatile organic compounds (SVOCs)[benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene], all of which are PAHs, and seven metals (arsenic, barium, beryllium, cadmium, chromium, lead, and zinc) were detected above their respective guidance values.

In general, the most frequently detected SVOCs with the highest concentrations were found at the southeastern end of the drainage swale.

2.4.2 Subsurface Soil Contamination

Subsurface soil samples were collected between 2 feet and 7 feet below ground surfaces (bgs). In general, VOCs and SVOCs were detected infrequently in the subsurface soil samples. Tables 1 and 2 present a summary of the

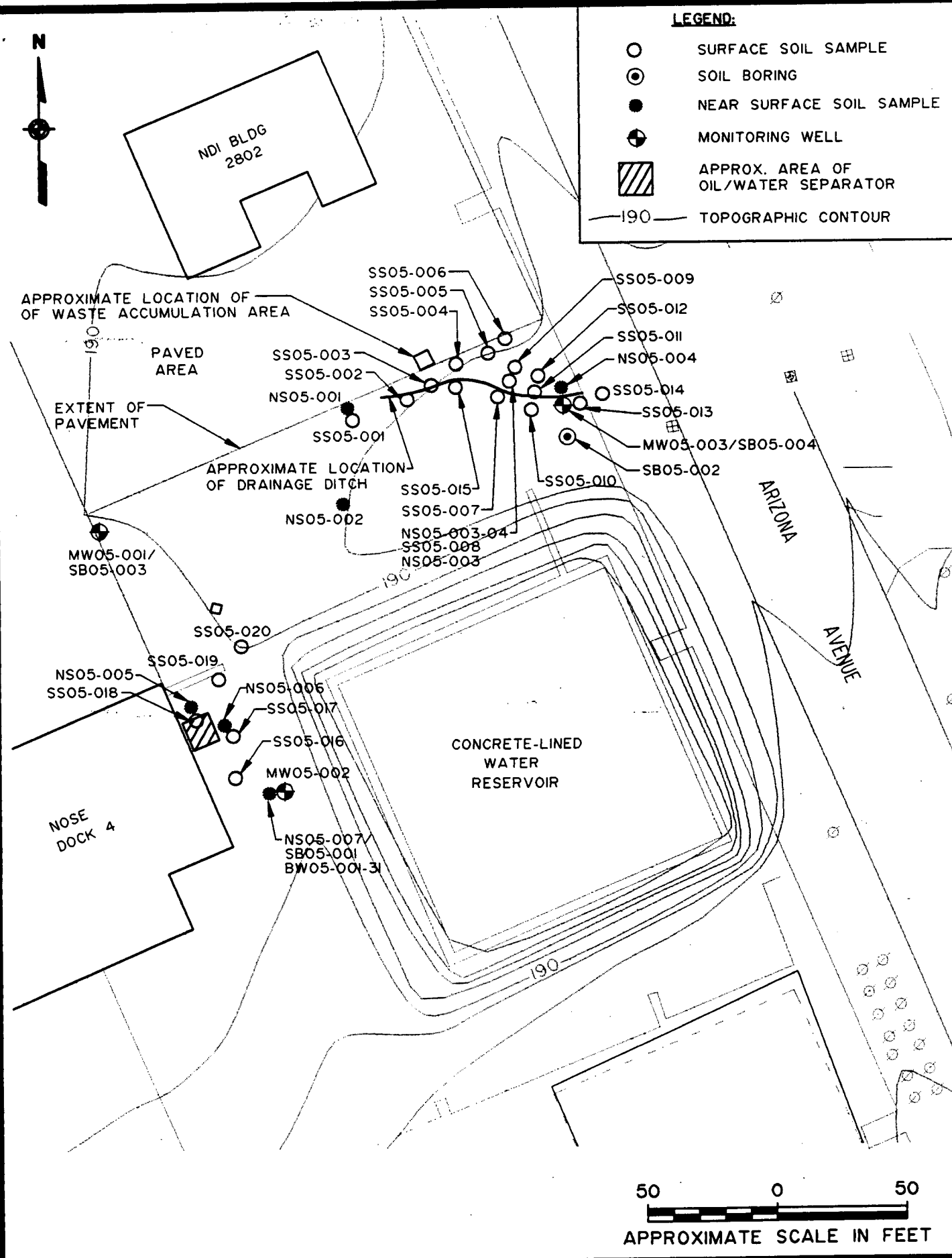


TABLE 1
SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SS-005
SURFACE AND SUBSURFACE SOILS (1)

ANALYTE	TYPE	GUIDANCE VALUES* (µg/kg)	SURFACE SOILS				SUBSURFACE SOILS (2)			
			FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/kg)	DETECTED MAXIMUM CONCENTRATION (µg/kg)	FREQUENCY ABOVE TBCs	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/kg)	DETECTED MAXIMUM CONCENTRATION (µg/kg)	FREQUENCY ABOVE TBCs
Acetone	VOC	200	3/21	3	7	0/21	2/19	20	27	0/19
Methylene Chloride	VOC	100	--	--	--	--	2/19	4	4900	1/19
Toluene	VOC	1,500	--	--	--	--	2/19	4	8	0/19
Xylene (total)	VOC	1,200	1/21	2	2	0/21	1/19	17000	17000	1/19
Phenol	SVOC	30	--	--	--	--	1/19	423	423	1/19
4-Methylphenol	SVOC	900	--	--	--	--	--	--	--	--
Benzoic Acid	SVOC	--	7/21	39	104	--	7/19	21	94	--
Naphthalene	SVOC	13,000	3/21	7	34	0/21	--	--	--	--
2-Methylnaphthalene	SVOC	36,400	1/21	15	15	0/21	1/19	440	440	0/19
Acenaphthylene	SVOC	41,000	10/21	16	2,036	0/21	3/19	4	24	0/19
Acenaphthene	SVOC	50,000	4/21	11	157	0/21	--	--	--	--
2,4-Dinitrotoluene	SVOC	--	--	--	--	--	1/19	200	200	--
Diethylphthalate	SVOC	7,100	--	--	--	--	1/19	20	20	0/19
Dibenzofuran	SVOC	6,200	1/21	41	41	0/21	--	--	--	--
Fluorene	SVOC	50,000	5/21	8	130	0/21	1/19	130	130	0/19
Phenanthrene	SVOC	50,000	11/21	12	1,572	0/21	7/19	2	58	0/19
Anthracene	SVOC	50,000	10/21	19	1,286	0/21	2/19	14	18	0/19
Carbazole	SVOC	--	10/21	17	1,363	--	1/19	21	21	--
Di-n-butylphthalate	SVOC	8,100	1/21	16	16	0/21	--	--	--	--
Fluoranthene	SVOC	50,000	17/21	15	4,612	0/21	6/19	21	2100	0/19
Pyrene	SVOC	50,000	17/21	14	5,145	0/21	6/19	22	132	0/19

-- Indicates analyte not detected

* Values from NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994 unless otherwise indicated.

1 - For samples with both level III and level IV analytical data, only level III data were considered in the statistical summary.

2 - Includes near-surface soil samples.

VOC = Volatile Organic Compound

SVOC = Semivolatile Organic Compound

PEST = Pesticide

PCB = Polychlorinated Biphenyl

 - Exceeds Guidance Value

TABLE 1 (continued)

**SUMMARY OF ORGANIC COMPOUNDS DETECTED IN SS-005
SURFACE AND SUBSURFACE SOILS (1)**

ANALYTE	TYPE	GUIDANCE VALUES* (µg/kg)	SURFACE SOILS				SUBSURFACE SOILS (2)			
			FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/kg)	DETECTED MAXIMUM CONCENTRATION (µg/kg)	FREQUENCY ABOVE TBCs	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (µg/kg)	DETECTED MAXIMUM CONCENTRATION (µg/kg)	FREQUENCY ABOVE TBCs
Benzo(a)anthracene	SVOC	224	12/21	19	3,537	6/21	3/19	14	51	0/19
Chrysene	SVOC	400	13/21	26	4,823	6/21	4/19	21	99	0/19
Di-n-octylphthalate	SVOC	50,000	--	--	--	--	3/19	4	13	0/19
bis(2-Ethylhexyl)phthalate	SVOC	50,000	12/21	33	371	0/21	--	--	--	--
Benzo(b)fluoranthene	SVOC	1,100	15/21	15	4,394	4/21	5/19	18	72	0/19
Benzo(k)fluoranthene	SVOC	1,100	16/21	15	5,573	3/21	5/19	20	82	0/19
Benzo(a)pyrene	SVOC	61	17/21	18	5,681	13/21	5/19	19	77	1/19
Indeno(1,2,3-cd)pyrene	SVOC	3,200	17/21	22	2,787	0/21	5/19	19	75	0/19
Dibenz(a,h)anthracene	SVOC	14	10/21	17	268	10/21	1/19	35	35	1/19
Benzo(g,h,i)perylene	SVOC	50,000	19/21	20	2,358	0/21	5/19	19	93	0/19
Endosulfan II	PEST	900	--	--	--	--	1/5	3.5	3.5	0/5
4,4'-DDD	PEST	2,900	2/4	1.2	3	0/4	--	--	--	--
4,4'-DDT	PEST	2,100	2/4	15	24	0/4	2/5	4.6	6.8	0/5
Methoxychlor	PEST	10,000	--	--	--	--	1/5	2.5	2.5	0/5
Aroclor-1254 (subsurface)	PCB	10,000	--	--	--	--	1/5	7	7	0/5
Aroclor-1260 (surface)	PCB	1,000	3/4	39	76	0/4	--	--	--	--

-- Indicates analyte not detected

* Values from NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994 unless otherwise indicated.

1 - For samples with both level III and level IV analytical data, only level III data were considered in the statistical summary.

2 - Includes near-surface soil samples.

VOC = Volatile Organic Compound

SVOC = Semivolatile Organic Compound

PEST = Pesticide

PCB = Polychlorinated Biphenyl

 - Exceeds Guidance Value

TABLE 2
SUMMARY OF INORGANIC COMPOUNDS DETECTED IN SS-005
SURFACE AND SUBSURFACE SOILS (1)

ANALYTE	TYPE	GUIDANCE VALUES* (mg/kg)	SURFACE SOILS				SUBSURFACE SOILS (2)			
			FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (mg/kg)	DETECTED MAXIMUM CONCENTRATION (mg/kg)	FREQUENCY ABOVE TBCs	FREQUENCY OF DETECTION	DETECTED MINIMUM CONCENTRATION (mg/kg)	DETECTED MAXIMUM CONCENTRATION (mg/kg)	FREQUENCY ABOVE TBCs
Aluminum	MET	8,510 †	21/21	1324	7,453	0/21	19/19	794	3524	0/19
Arsenic	MET	7.5	5/21	0.43	55	1/21	3/19	0.34	0.81	0/19
Barium	MET	300	9/21	14.6	721	2/21	7/19	7.9	340	1/19
Beryllium	MET	0.74 †	2/21	1	1	2/21	--	--	--	--
Cadmium	MET	1.3 †	16/21	0.59	10	12/21	5/19	1	2	1/19
Calcium	MET	30,200 †	21/21	879	20,100	0/21	11/19	583	4104	0/19
Chromium	MET	19.5 †	21/21	3	44	7/21	18/19	2.9	36	1/19
Cobalt	MET	30	4/21	1.4	2	0/21	5/19	1	1.5	0/19
Copper	MET	41.1 †	14/21	3.7	17	0/21	7/19	1.5	7.7	0/19
Iron	MET	36,700 †	21/21	2935	10,567	0/21	19/19	1037	6552	0/19
Lead	MET	79.4 †	17/21	13.9	254	7/21	7/19	2.1	75	0/19
Magnesium	MET	3,340 †	10/21	616	2,820	0/21	10/19	622	1911	0/19
Manganese	MET	474 †	21/21	19	128	0/21	19/19	8	107	0/19
Nickel	MET	13	10/21	2	10.4	0/21	7/19	2.1	83	2/19
Potassium	MET	929 †	4/21	175	415	0/21	5/19	162	256	0/19
Sodium	MET	520 †	4/21	41.8	45.6	0/21	5/19	26	39.9	0/19
Vanadium	MET	150	19/21	7	34	0/21	9/19	4	13.5	0/19
Zinc	MET	63.4 †	21/21	11	190	9/21	17/19	7	433	2/19

-- Indicates analyte not detected

* Values from NYSDEC Soil Cleanup Objectives and Cleanup Levels, TAGM HWR-94-4046, January 1994 unless otherwise indicated.

† Soil background "To Be Considered" (TBC) value from "Background Surface Soil & Groundwater Survey for the Plattsburgh Air Force Base" (URS, 1995).

1 - For samples with both level III and level IV analytical data, only level III data were considered in the statistical summary.

2 - Includes near-surface soil samples.

MET = Metal

 - Exceeds Guidance Value

levels of contamination found in the SS-005 subsurface soil and a comparison to the respective soil guidance values (see Section 2.4). No pesticides or PCBs were present above guidance thresholds. However, two VOCs [methylene chloride and xylene (total)], three SVOCs [phenol, benzo(a)pyrene, and dibenzo(a,h)anthracene], and five metals (barium, cadmium, chromium, nickel, and zinc) exceeded the guidance values. All of the VOC and SVOC results that exceeded the guidance thresholds were obtained from samples at the southeastern end of the drainage swale.

2.4.3 Groundwater Contamination

All VOCs and SVOCs present in surface and subsurface soil samples that exceeded the NYSDEC soil cleanup guidelines either were not detected in groundwater at the site, or were detected below the ARARs. A summary of the results compared to the guideline values is given in Table 3. Three metals (aluminum, iron, and manganese) were detected in groundwater at concentrations above the ARARs. However, these metals were not detected above background concentrations in the soil at SS-005. Therefore, it appears that the soils at SS-005 are not a source of groundwater contamination and that there is no continuous upgradient contamination source affecting the groundwater at SS-005.

3.0 SUMMARY OF SITE RISKS

During the RI, a baseline HRA was conducted to estimate the current and future risks at the site if no remedial action was taken. Possible human health and ecological risks were evaluated. Due to their close proximity and potentially overlapping areas of contamination, sites SS-005 and SS-006 were evaluated as one area. Chemicals of potential concern (CPCs) for the two sites (Table 4) were chosen based on frequency of detection, chemical-specific toxicity information, and exceedance of background levels (for inorganics only).

3.1 Human Health Risk Assessment

Five steps are followed in assessing site-related human health risks: *Hazard Identification* -

determines the chemicals of concern at the site based on toxicity, frequency of occurrence, and concentration. *Exposure Assessment* - estimates the magnitude of actual and/or potential human exposures, and the pathways (e.g., dermal contact with soil) by which humans potentially are exposed. *Toxicity Assessment* - determines adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization* - summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks. *Uncertainty Analysis* - qualifies the quantitative results of the risk assessment based upon the uncertainty associated with the assumptions made in the analysis. Generally, assumptions made in the assessment process are conservative and yield a reasonable overestimation, rather than an underestimation of risk.

The human HRA follows federal guidelines to estimate the potential carcinogenic (i.e., cancer-causing) and noncarcinogenic health effects due to potential exposure to site contaminants of concern from assumed exposure scenarios and pathways. These guidelines consider carcinogenic risk to be acceptable if it is calculated to be in the range of 10^{-4} to 10^{-6} or less, and specify a maximum health hazard index (which reflects noncarcinogenic effects for a human receptor) less than or equal to 1.0. A hazard index (HI) greater than 1.0 indicates a potential of adverse noncarcinogenic health effects.

Two human exposure scenarios were evaluated as part of the human HRA for site SS-005 and are summarized in Table 5.

A) Current Scenario - This scenario assumes that civilian personnel conducting landscape work and trespassers may come in contact with contaminated soils. Potential routes of exposure for this scenario include incidental ingestion of and dermal contact with surface soil. Because there is no current use of the groundwater at SS-005, there is little likelihood of human contact with the contaminants in this medium under this scenario.

B) Future Scenario - This scenario accounts

TABLE 3
CHARACTER OF GROUNDWATER CONTAMINATION

ANALYTE	TYPE	ARAR VALUE (µg/L)	FREQUENCY OF DETECTION	DETECTED MAXIMUM CONCENTRATION (µg/L)
Carbon Tetrachloride	VOC	5.0 *	1/6	0.1
Bromodichloromethane	VOC	50 *	1/6	0.9
Trichloroethene	VOC	5.0 *	3/6	3.0
Benzene	VOC	0.7 *	2/6	0.2
Bromoform	VOC	50 *	1/6	1.0
Toluene	VOC	5.0 *	1/6	0.1
Chlorobenzene	VOC	5.0 *	1/6	0.3
Diethylphthalate	SVOC	50 *	1/6	0.2
Carbazole	SVOC	NR	1/51/5	0.1
Di-n-butylphthalate	SVOC	50 *	2/6	1.0
Fluoranthene	SVOC	50 *	1/5	0.1
Pyrene	SVOC	50 *	1/5	0.2
Butylbenzylphthalate	SVOC	50 *	2/5	0.4
bis(2-Ethylhexyl)phthalate	SVOC	50 *	1/5	3.0
Aluminum	METAL	50 to 200***	3/3	6820
Arsenic	METAL	25 *	4/6	8.1
Barium	METAL	1,000 *	5/6	45.4
Cadmium	METAL	5.0 **	1/6	2.07
Calcium	METAL	NR	3/3	55,700
Chromium	METAL	50 *	2/6	7.2
Cobalt	METAL	NR	2/3	4.7
Copper	METAL	200 *	3/3	15.4
Iron	METAL	300 *	3/3	23200
Lead	METAL	15 **	6/6	6.9
Magnesium	METAL	35,000 *	3/3	11200
Manganese	METAL	300 *	3/3	3,530
Potassium	METAL	NR	3/3	4,490
Sodium	METAL	20,000 *	3/3	4,960
Vanadium	METAL	NR	2/3	28.2

* - NYSDEC Water Quality Standards and Guidance Values, TOGS 1.1.1, October 1993

** - USEPA Drinking Water Standards 40 CFR 141

*** - USEPA Secondary Maximum Contaminant Levels 40 CFR 143

- Exceeds Guidance Value

Highlighted concentration indicate exceedances of guidance value

VOC = Volatile Organic Compound

SVOC = Semivolatile Organic Compound

MET = Metal

TABLE 4
CHEMICALS OF POTENTIAL CONCERN FOR SS-005 AND SS-006
SURFACE AND SUBSURFACE SOILS

ANALYTE	TYPE	SURFACE SOILS		SUBSURFACE SOILS	
		FREQUENCY OF DETECTION	CHEMICAL OF CONCERN	FREQUENCY OF DETECTION	CHEMICAL OF CONCERN
Methylene Chloride	VOC	--		2/24	X
Trichloroethene	VOC	1/30		--	
Toluene	VOC	--		2/24	X
Tetrachloroethene	VOC	1/30		--	
Xylene (total)	VOC	1/30		1/24	
Acenaphthene	SVOC	4/30	X	1/24	X
Acenaphthylene	SVOC	10/30	X	3/24	
Anthracene	SVOC	12/30	X	2/22	X
Benzoic Acid	SVOC	12/30	X	11/24	
Benzo(a)anthracene	SVOC	17/30	X	5/24	X
Benzo(b)fluoranthene	SVOC	22/30	X	6/24	X
Benzo(k)fluoranthene	SVOC	22/30	X	6/24	X
Benzo(a)pyrene	SVOC	23/30	X	4/24	X
Benzo(g,h,i)perylene	SVOC	22/30	X	5/24	
bis(2-Ethylhexyl)phthalate	SVOC	22/30	X	1/24	X
Butylbenzylphthalate	SVOC	1/30		--	
Carbazole	SVOC	12/30	X	2/24	
4-Chlorophenyl-phenylether	SVOC	--		1/24	
4-Chloro-3-methylphenol	SVOC	--		1/24	
Chrysene	SVOC	20/30	X	13/24	X
Dibenzofuran	SVOC	2/30	X	--	
Dibenz(a,h)anthracene	SVOC	10/30	X	4/24	X
3,3-Dichlorobenzidine	SVOC	--		4/24	X
2,4-Dimethylphenol	SVOC	--		11/24	X
Dimethylphthalate	SVOC	--		3/24	X
2,4-Dinitrotoluene	SVOC	--		2/24	X
Di-n-butylphthalate	SVOC	--		7/24	X
2,6-Dinitrotoluene	SVOC	1/30		--	
Di-n-octylphthalate	SVOC	--		7/24	X
Fluoranthene	SVOC	24/30	X	8/24	X
Fluorene	SVOC	6/30	X	--	
Indeno(1,2,3-c,d)pyrene	SVOC	22/30	X	5/24	X
2-Methylnaphthalene	SVOC	3/30	X	--	
4-Methylphenol	SVOC	1/30		--	
Naphthalene	SVOC	3/30	X	--	
Pentachlorophenol	SVOC	--		7/24	X
Phenanthrene	SVOC	18/30	X	2/24	X
Phenol	SVOC	--		1/24	
Pyrene	SVOC	24/30	X	5/24	X

-- Indicates analyte not detected

VOC = Volatile Organic Compound

SVOC = Semivolatile Organic Compound

TABLE 4 (cont'd)

**CHEMICALS OF POTENTIAL CONCERN FOR SS-005 AND SS-006
SURFACE AND SUBSURFACE SOILS**

ANALYTE	TYPE	SURFACE SOILS		SUBSURFACE SOILS	
		FREQUENCY OF DETECTION	CHEMICAL OF CONCERN	FREQUENCY OF DETECTION	CHEMICAL OF CONCERN
Aroclor-1254	PCB	--		1/6	X
Aroclor-1260	PCB	3/6	X	--	
4,4'-DDD	PEST	2/6	X	--	
4,4-DDT	PEST	2/6	X	2/6	X
Endosulfan II	PEST	--		1/6	X
Methoxychlor	PEST	--		1/6	X
Aluminum	METAL	30/30		24/24	
Antimony	METAL	25/30	X	18/24	X
Arsenic	METAL	29/30	X	23/24	X
Barium	METAL	30/30	X	24/24	X
Beryllium	METAL	26/30	X	18/24	X
Cadmium	METAL	29/30	X	21/24	X
Calcium	METAL	30/30		24/24	
Chromium	METAL	30/30	X	24/24	X
Cobalt	METAL	30/30		24/24	
Copper	METAL	30/30		24/24	
Iron	METAL	30/30		24/24	
Lead	METAL	30/30		24/24	
Magnesium	METAL	30/30		24/24	
Manganese	METAL	30/30		24/24	
Nickel	METAL	30/30	X	24/24	X
Potassium	METAL	30/30		24/24	
Selenium	METAL	25/30	X	18/24	X
Silver	METAL	25/30	X	18/24	X
Sodium	METAL	30/30		24/24	
Thallium	METAL	25/30		22/24	
Vanadium	METAL	30/30	X	24/24	
Zinc	METAL	30/30	X	24/24	X

-- Indicates analyte not detected

PEST = Pesticide

PCB = Polychlorinated Biphenyl

MET = Metal

TABLE 5

**SITES SS-005 & SS-006 REMEDIAL INVESTIGATION
CANCER RISKS AND HAZARD INDICES FOR MULTIPLE HUMAN AND ECOLOGICAL PATHWAYS**

HUMAN HEALTH RISK ASSESSMENT

EXPOSURE PATHWAY	CURRENT USE		FUTURE USE					
	CIVILIAN LANDSCAPE WORKER/ TRESPASSER		CONSTRUCTION WORKER/ SITE WORKER		RESIDENT			
	HAZARD INDEX	CANCER RISK	HAZARD INDEX	CANCER RISK	HAZARD INDEX		CANCER RISK	
					ADULT	CHILD	ADULT	CHILD
Ingestion of Surface Soil	0.1	1E-05	0.0	1E-07	—	—	—	—
Dermal Contact with Surface Soil	0.0	2E-07	0.0	1E-08	—	—	—	—
Ingestion of Groundwater	—	—	0.2	3E-05	0.7	2.0	9E-05	5E-05
Dermal Contact with Groundwater	—	—	—	—	0.0	0.0	3E-07	1E-07
Inhalation of Chemicals in Vapors While Showering	—	—	0.0	2E-08	0.0	0.0	7E-14	6E-14
TOTAL EXPOSURE HAZARD RISK	0.1	—	0.2	—	0.7	2.0	—	—
TOTAL EXPOSURE CANCER INDEX	—	1E-05	—	3E-05	—	—	9E-05	5E-05

NOTES:

— Pathway not evaluated in the HRA

1E-05 = 0.00001 or one potential cancer case in 100,000.

for two potential future activities at the SS-005 site:

(1) *Future utility, maintenance or construction activities* may result in disrupted soil (e.g., excavation) which potentially could expose utility/construction workers to site contaminants in surface and subsurface soil. This exposure would be similar to that estimated for civilian landscape workers in the current exposure scenario (above) with the additional potential to ingest groundwater.

(2) *Future residential development* may occur, where adults and children would live in residences located on SS-005. The exposure routes for residents in this future scenario is based on the ingestion of groundwater and the inhalation of vapors and dermal contact from potable groundwater during showering. This assumption is very conservative given that the site has a readily-available public water supply and any future potential for residences at SS-005 likely would use the public supply of water over potable well water. In addition, given that the site is slated for industrial use (PARC 1995) its development for residential use is improbable.

For current land use, the total cancer risk for the civilian landscape worker/trespasser was estimated as 1×10^{-5} , which is within the acceptable risk range established by current USEPA guidelines. For the hypothetical future land use, the total estimated cancer risks to a site/construction worker, an adult resident, and a child resident, were 3×10^{-5} , 9×10^{-5} , and 5×10^{-5} , respectively. These results are within the acceptable USEPA specified range.

For the current land use, the total HI for the civilian landscape worker/trespasser was estimated to be 0.1. For hypothetical future land use, the total HIs for the utility/construction worker, resident adult, and resident child were 0.2, 0.7, and 2.0, respectively for SS-005. The future resident child HI is the only estimated index above the 1.0 acceptable risk range for potential noncarcinogenic health effects.

The major impact to the HI for the future resident child case was the ingestion of small

quantities of arsenic from drinking potable groundwater. The arsenic and the other metals found in the groundwater at SS-005 were analyzed using unfiltered samples, which typically elevates the levels of metals reported due to the inclusion of suspended minerals with the groundwater. In addition, all the arsenic concentrations in the groundwater at SS-005 were more than 60 percent below the NYSDEC water quality criteria threshold of $25 \mu\text{g/L}$ (NYSDEC 1993) and more than 80 percent below the USEPA arsenic primary drinking water standard threshold of $50 \mu\text{g/L}$ (40 CFR 141). These water standards were conservatively set by the regulatory agencies to protect the public from arsenic's potential adverse noncarcinogenic health effects.

As stated above, the human HRA overestimates the hazards associated with potential exposure to contaminants and the scenario for the future resident child case is unlikely due to the availability of a public water supply for the SS-005 site. In addition, it is unlikely that SS-005 will be developed for residential use. Therefore, exposure to the low levels of arsenic contamination in the groundwater for a potential future resident child is most likely negligible and poses very little risk.

3.2 Ecological Risk Assessment

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: *Problem Formulation* - a qualitative evaluation of contaminant release, migration, and fate; identification of CPCs, ecological receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. *Exposure Assessment* - a quantitative evaluation of contaminant release, migration, and fate; characterization of exposure pathways and receptors; and measurement of the estimation of exposure point concentration. *Ecological Effects Assessment* - literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. *Risk Characterization* - a measurement of estimation of current adverse effects.

Sites SS-005, SS-006, and SS-017 were combined for the ecological assessment due to their proximity to each other and their limited areal extent. A screening level ecological risk assessment was performed to assess the potential impact of exposure to contaminated surface soil on terrestrial organisms. The species evaluated for the site were the white-footed mouse, short-tailed shrew, and American robin. In addition, the terrestrial vegetation at the SS-005 site was evaluated.

Due to the large extent of paving, buildings, and structures at SS-005, a very limited habitat exists on site (less than 1/10 acre). The balance of the site is an open area of mowed grass which is unsuitable for mice, shrews, and robins to nest. The HRA concluded that it is unlikely that many species would feed exclusively in or inhabit the SS-005 site. The results of the assessment are expressed as an HI. An HI of less than or equal to 1.0 indicates no estimated health effects to ecological receptors.

Ecological risk calculations for an assumed scenario of resident receptors indicated that contaminants in the surface soil at the three sites present a possible risk to wildlife. Again, this scenario estimated potential adverse health risks based on the receptors nesting and feeding exclusively at SS-005, which is unrealistic. HIs for arsenic, lead, and barium were calculated to be between 1 and 17. HIs for other chemicals were calculated to be less than 1.0. The scenario used for this ecological risk assessment was unrealistic, including the assumption that nesting of the birds was possible without proper terrestrial vegetation at SS-005 and that feeding would occur only within SS-005, when range areas for the birds are far in excess of the available feeding areas. The ecological risk assessment concludes that, based on the limited habitat available at SS-005 and the unlikelihood that wildlife would utilize these areas to any extent, wildlife exposure to the CPCs is most likely negligible and poses very little risk.

4.0 DESCRIPTION OF THE "NO FURTHER ACTION" PREFERRED ALTERNATIVE

4.1 Basis

The results of the RI indicate that there is no unacceptable human health risk associated with exposure to soil and groundwater at SS-005, given present and reasonably foreseeable future use of the area. Ecological risks are possible to terrestrial wildlife from chemicals detected in surface soil. However, due to the current land use of the area and because the area of exposed soil is limited (less than 1/10 acre), wildlife exposure to contaminants in the soil is insignificant.

The SS-005 site is located downgradient from IRP site FT-002, a significant source of VOCs in groundwater. It is possible that contaminants in groundwater from the FT-002 site may, in time, impact groundwater in the vicinity of SS-005. Migration of contaminants from FT-002 will be monitored as part of FT-002 Operable Unit 2.

4.2 Identification of Alternative

Because there are not significant threats to human or ecological health, or to groundwater resources posed by soil contamination at SS-005, no alternative other than a "No Action" alternative was considered. Therefore, no action will be taken to reduce site contaminants in surface and subsurface soil beyond their current levels.

5.0 COMMUNITY PARTICIPATION

The following paragraphs explain how the public can become involved in the selection process after reviewing the Proposed Plan.

5.1 Public Comment Period

Plattsburgh AFB will hold a 30-day public comment period from _____ to _____ to solicit public input. During this period, the public is invited to review the Proposed Plan, the Attachment I Sites Remedial Investigation, and to comment on the preferred alternative being

considered. These documents make up the Administrative Record for the SS-005 site. The full-length reports are available at the Information Repository located at the Feinberg Library (see page one of this Proposed Plan for the address and available hours).

5.2 Public Informational Meeting and Public Hearing

Plattsburgh AFB will host a public meeting on or about _____ at the _____. The actual date and time of the meeting will be announced as soon as it is scheduled. The public is encouraged to attend this presentation of the preferred alternative and to ask questions.

Plattsburgh AFB will hold a formal Public Hearing to accept comments on the remedial alternative being considered for the SS-005 site. The hearing will provide the opportunity for citizens to comment officially on the plan. Public comments received at the meeting, as well as written comments, will be recorded and transcribed, and a copy of the transcript will be added to the Administrative Record and Information Repository.

5.3 Written Comments

If you would like to submit written comments about Plattsburgh AFB's preferred alternative or other issues relevant to the site remediation, please deliver your comments to Plattsburgh AFB's IRP Coordinator at the Public Hearing or mail your written comments (to be received no later than the week of _____) to:

Mr. Michael D. Sorel
BRAC Environmental Coordinator
AFBCA/DAP
426 U.S. Oval
Suite 2210
Plattsburgh AFB, NY 12903-5000
(518) 563-2871

5.4 Plattsburgh AFB's Review of Public Comment

Public comments are part of the process of reaching a final decision on an appropriate remedial alternative for SS-005. Plattsburgh AFB's final choice of a remedial alternative will be issued in a Record of Decision (ROD) for the site and will be submitted to the USEPA for review, approval, and signature and to the NYSDEC for review and concurrence. A Responsiveness Summary of public comments and Plattsburgh AFB's responses to these comments will accompany the ROD. Once the ROD is signed, it becomes part of the Administrative Record.

5.5 Additional Public Information

Because the Proposed Plan only summarizes the field investigation and remedial action for SS-005, the public is encouraged to consult the Administrative Record which contains the complete RI and other supporting reports.

REFERENCES

- E.C. Jordan, Co. 1989. *Installation Restoration Program, Final Site Inspection Report, Plattsburgh Air Force Base, Plattsburgh, New York.*
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- New York State Department of Environmental Conservation (NYSDEC). 1993. *Ambient Water Quality Standards and Guidance Values, TOGS 1.1.1.* Albany: Division of Water.
- _____. 1994. *Determination of Soil Cleanup Objectives and Cleanup Levels, TAGM #4046.* Albany: Bureau of Hazardous Waste Remediation.
- Plattsburgh Airbase Redevelopment Corporation (PARC). 1995. *Comprehensive Reuse Plan for Plattsburgh Air Force Base.* 15 September (subject to revision).
- URS Consultants, Inc. (URS). 1995. *Background Surface Soil and Groundwater Survey for Plattsburgh Air Force Base (Draft).*
- U.S. Environmental Protection Agency (USEPA). 1989a. *Guidance on Preparing Superfund Decision Documents: the Proposed Plan, the Record of Decision, Explanation of Significant Differences, the Record of Decision Amendment, Interim Final, July.* Cincinnati, OH: USEPA.
- _____. 1989b. *Risk Assessment Guidance of Superfund, Vol I: Human Health Evaluation Manual (Part A), Interim Final (EPA/540/1-89/002).* Cincinnati, OH: Office of Emergency and Remedial Response.
- _____. 1989c. *Risk Assessment Guidance for Superfund. Vol II. Environmental Evaluation Manual, (EPA/540/1-89/001).* Cincinnati, OH: Office of Emergency and Remedial Response.
- _____. 1991a. *Summary Report on Issues in Ecological Risk Assessment, (EPA/625/3-91-018), Risk Assessment Forum.* Cincinnati, OH: USEPA.
- _____. 1991b. *Ecological Assessment of Superfund Sites: an Overview, ECO Update, Vol. 1, No. 2, Publication 934.0-05I.* Cincinnati, OH: USEPA.

GLOSSARY

Administrative Record: A file established and maintained in compliance with Section 113(K) of CERCLA, consisting of information upon which the lead agency bases its final decisions on the selection of remedial method(s) for a Superfund site. The Administrative Record is available to the public.

Applicable or Relevant and Appropriate Requirements (ARARs): ARARs include any state or federal statute or regulation that pertains to protection of public health and the environment in addressing certain site conditions or using a particular remedial technology at a Superfund site. A state law to preserve wetland areas is an example of an ARAR. USEPA must consider whether a remedial alternative meets ARARs as part of the process for selecting a remedial alternative for a Superfund site.

Carcinogenic: Exposure to a particular level of a potential carcinogen may produce cancer.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act requires federal agencies to investigate and remediate abandoned or uncontrolled hazardous waste sites.

Ecological Receptors: Fauna or flora in a given area that could be affected by contaminants in surface soils, surface water, and/or sediment.

Groundwater: Water found beneath the earth's surface that fills pores within materials such as sand, soil, gravel, and cracks in bedrock, and often serves as a source of drinking water.

Inorganic Compounds: A class of naturally occurring compounds that includes metals, cyanide, nitrates, sulfates, chlorides, carbonate, bicarbonate, and other oxide complexes.

Installation Restoration Program (IRP): The U.S. Air Force subcomponent of the Defense Environment Restoration Program (DERP) that specifically deals with investigating and remediating sites associated with suspected releases of toxic and hazardous materials from past activities. The DERP was established to clean up hazardous waste disposal and spill sites at Department of Defense facilities nationwide.

Monitoring: Ongoing collection of information about the environment that helps gauge the effectiveness of a cleanup action. Information gathering may include groundwater well sampling, surface water sampling, soil sampling, air sampling, and physical inspections.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The NCP provides the organization structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants. The NCP is required under CERCLA and the Clean Water Act, and the USEPA has been delegated the responsibility for preparing and implementing the NCP. The NCP is applicable to response actions taken pursuant to the authorities under CERCLA and the Clean Water Act.

National Priorities List: The USEPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program.

Natural Attenuation: Processes by which contaminant levels are reduced in nature. Contaminants in soil or groundwater are reduced by aerobic (oxygen-using) bacteria, other biological activity, volatilization, and dilution/dispersion.

Noncarcinogenic: Exposure to a particular level of a potential noncarcinogen may produce adverse health effects.

Organic Compounds: Any chemical compounds built on the carbon atom, i.e., methane, propane, phenol, etc.

Polynuclear Aromatic Hydrocarbons (PAHs): A chemical compound consisting of carbon and hydrogen and containing two or more fused benzene rings. They are a group of highly reactive organic compounds found in motor oil and common components of creosotes. Many are carcinogenic.

Petroleum Hydrocarbons (PHCs): The mixture of hydrocarbons and small amounts of other substances that make up petroleum. Hydrocarbons are chemical compounds consisting of carbon and hydrogen, and are found in gasoline, naphtha, and other products produced by refining processes.

Polychlorinated Biphenyl (PCB): A compound that formerly was used as a lubricant and transformer coolant.

Proposed Plan: A public document that solicits public input on a recommended remedial alternative to be used at a National Priorities List (NPL) site. The Proposed Plan is based on information and technical analysis generated during the RI/FS. The recommended remedial action could be modified or changed based on public comments and community concerns.

Record of Decision (ROD): A public document that explains the remedial alternative to be used at a National Priorities List (NPL) site. The ROD is based on information and technical analysis generated during the Remedial Investigation, and on consideration of the public comments and community concerns received on the Proposed Plan. The ROD includes a Responsiveness Summary of public comments.

Remedial Action: A long-term action that stops or substantially reduces a release or threat of a release of hazardous substances that is serious but not an immediate threat to human health or the environment.

Remedial Alternatives: Options evaluated to address the source and/or migration of contaminants to meet health-based or ecology-based remediation goals.

Remedial Investigation (RI): The Remedial Investigation determines the nature, extent, and composition of contamination at a hazardous waste site and directs the types of remedial options that are developed in the Feasibility Study.

Semivolatile Organic Compound (SVOCs) : Organic constituents which are generally insoluble in water and are not readily transported in groundwater.

Source: Area at a hazardous waste site from which contamination originates.

Superfund: The trust fund, created by CERCLA out of special taxes, used to investigate and clean up abandoned or uncontrolled hazardous waste sites. Out of this fund the USEPA either: (1) pays for site remediation when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work or (2) takes legal action to force parties responsible for site contamination to clean up the site or pay back the federal government for the cost of the remediation. Federal facilities are not eligible for Superfund monies.

Technical and Administrative Guidance Memorandum (TAGM): TAGM #4046 issued by NYSDEC Bureau of Hazardous Waste Remediation establishes chemical-specific soil cleanup objectives in the vadose zone. The document is entitled *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC 1994).

Terrestrial Wildlife: Animals living on land (e.g., reptiles, small mammals, small birds, predatory mammals, predatory birds).

To Be Considered (TBCs): Federal and state policies, advisories, and other non-promulgated health and environment criteria, including numerical guidance values, that are not legally binding. TBCs are used for the protection of public health and the environment if no specific ARARs for a chemical or other site conditions exist, or if ARARs are not deemed sufficiently protective.

Volatile Organic Compounds (VOCs): Organic compounds that have a high propensity to volatilize or to change from a liquid to a gas form.